

ACCIDENT ANALYSIS & PREVENTION

List of Contents and Author Index
Volume 29, 1997



PERGAMON

ACCIDENT ANALYSIS & PREVENTION

EDITOR-IN-CHIEF: **FRANK A. HAIGHT**

Institute of Transport Studies, University of California, Irvine, CA 92697, U.S.A.
(Email: fahaight@uci.edu)

ASSOCIATE EDITORS

RUNE ELVIK

Institute of Transport Economics,
PO Box 6110 Etterstad, N-0602 Oslo 6, Norway
(Email: rune.elvik@toi.no)

A. JAMES MCKNIGHT

National Public Services Research, 8201 Corporate
Drive, Suite 220, Landover, MD 20785, U.S.A.

HERBERT MOSKOWITZ

4138 Royal Crest Place, Encino, CA 91436,
U.S.A.

KÅRE RUMAR

Road Safety, National Swedish Road
Administration, S-781 87 Borlänge, Sweden

EDITORIAL ADVISORY BOARD

KAREL A. BROOKHUIS, Groningen, The Netherlands

JEREMY BROUGHTON, Crowthorne, U.K.

PETER CAIRNEY, Nunawading, Vic., Australia

PATRICIA DELHOMME, Arcueil, France

BRIAN DULISSE, Raritan, NJ, U.S.A.

TOM DWYER, São Paulo, Brazil

B. N. FILDES, Clayton, Vic., Australia

BARUCH FISCHHOFF, Pittsburgh, PA, U.S.A.

ROBERT J. FLOWERS, Tabasco, Mexico

RAY FULLER, Dublin, Ireland

BARBARA GABELLA, Denver, CO, U.S.A.

PER GÅRDER, Orono, ME, U.S.A.

JOHN D. GRAHAM, Boston, MA, U.S.A.

LINDSAY I. GRIFFIN, College Station, TX, U.S.A.

STEPHEN J. GUASTELLO, Milwaukee, WI, U.S.A.

JAGADISH C. GURIA, Wellington, New Zealand

JAMES HEDLUND, Washington, DC, U.S.A.

J. MICHAEL HENDERSON, Church Point, N.S.W., Australia

PATRICIA S. HU, Oak Ridge, TN, U.S.A.

BRIAN JONAH, Ottawa, Canada

MORRIS D. KERSTEIN, Philadelphia, PA, U.S.A.

KARL KIM, Honolulu, HI, U.S.A.

SYLVAIN LASSARRE, Arcueil, France

TED MILLER, Landover, MD, U.S.A.

DINESH MOHAN, New Delhi, India

CARL NASH, Washington, DC, U.S.A.

ALAN NICHOLSON, Christchurch, New Zealand

SIEM OPPE, Leidschendam, The Netherlands

SUSAN C. PARTYKA, Washington, DC, U.S.A.

RAYMOND C. PECK, Sacramento, CA, U.S.A.

STEVEN M. ROCK, Macomb, IL, U.S.A.

STEVEN E. ROSS, Camden, NJ, U.S.A.

DAVID SHINAR, Beer Sheva, Israel

ALISON SMILEY, Toronto, Canada

CARL A. SODERSTROM, Baltimore, MD, U.S.A.

HEIKKI SUMMALA, Helsinki, Finland

EVELYN VINGILIS, London, Ontario, Canada

ALEXANDER C. WAGENAAR, Minneapolis, MN, U.S.A.

NICHOLAS J. WARD, Leeds, U.K.

Production Editor: Briony Moon. E-mail address: b.moon@elsevier.co.uk

Publishing Office: Elsevier Science Ltd, Bampfylde Street, Exeter EX1 2AH, England [Tel. Exeter +44 (0)1392 251558; Fax +44 (0)1392 425370].

Annual Institutional Subscription Rates 1997: Europe, The CIS and Japan, 1388.00 Dutch Guilders; all other countries, US\$857.00. Associated Personal Subscription rates are available on request for those whose institutions are library subscribers. Dutch Guilders prices exclude VAT. Non-VAT registered customers in the European Community will be charged the appropriate VAT in addition to the price listed. Prices include postage and insurance and are subject to change without notice.

Any enquiries relating to subscription should be sent to:

The Americas: Elsevier Science Customer Support Department, PO Box 945, New York, NY 10010, USA [Tel: (+1) 212-633-3730/1-888 4ES-INFO. Fax: (+1) 212-633-3680. Email: usinfo-f@elsevier.com].

Japan: Elsevier Science Customer Support Department, 9-15 Higashi-Azabu 1-chome, Minato-ku, Tokyo 106, Japan [Tel: (+81) 3-5561-5033. Fax: (+81) 3-5561-5047. Email: info@elsevier.co.jp].

Asia Pacific (excluding Japan): Elsevier Science (Singapore) Pte Ltd, No. 1 Temasek Avenue, 17-01 Millenia Tower, Singapore 039192 [Tel: (+65) 434-3727. Fax: (+65) 337-2230. Email: asiainfo@elsevier.com.sg].

Rest of the World: Elsevier Science Customer Service Department, PO Box 211, 1001 AE Amsterdam, The Netherlands [Tel: (+31) 20-485-3757. Fax: (+31) 20-485-3432. Email: nlinfo-f@elsevier.nl].

PERIODICALS POSTAGE PAID AT RAHWAY, NEW JERSEY. *Accident Analysis & Prevention* (ISSN 0001-4575) is published 6 issues per year in January, March, May, July, September and November, by Elsevier Science Ltd, The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, UK. The annual subscription in the U.S.A. is \$857.00. *Accident Analysis & Prevention* is distributed by Mercury Airfreight International Ltd, 2323 Randolph Avenue, Avenel, NJ 07001-2413. POSTMASTER: Please send address changes to *Accident Analysis & Prevention*, c/o Elsevier Science Regional Sales Office, Customer Support Department, 655 Avenue of the Americas, New York, NY 10010, USA.

VOLUME 29, 1997
LIST OF CONTENTS

NUMBER 1

Papers

Trends in cycle injury in New Zealand under voluntary helmet use Paul A. Scuffham and John D. Langley	1
A comparison of driver behavior at railroad grade crossings with two different protection systems Frank Meeker, Daniel Fox and Christopher Weber	11
Estimating the exposure and fatal crash rates of suspended/revoked and unlicensed drivers in California David J. DeYoung, Raymond C. Peck and Clifford J. Helander	17
Accident prevention versus recidivism prevention courses for repeat traffic offenders A. James McKnight and A. Scott Tippetts	25
Correlations between traffic, occupational, sports, and home accidents Simo Salminen and Markku Heiskanen	33
Quasi-induced exposure: methodology and insight Nikiforos Stamatiadis and John A. Deacon	37
Trauma outcome analysis and the development of regional norms P. L. Lane, G. Doig, T. Charyk Stewart, A. Mikrogianakis and T. Stefanits	53
Reckless driving in adolescence: 'state' and 'trait' factors Jeffrey Jensen Arnett, Daniel Offer and Mark A. Fine	57
The impact of mail contact strategy on the effectiveness of driver license withdrawal Michael A. Gebers, David J. DeYoung and Raymond C. Peck	65
Tractor-trailer crashes in Indiana: a case-control study of the role of truck configuration Elisa R. Braver, Paul L. Zador, Denise Thum, Eric L. Mitter, Herbert M. Baum and Frank J. Vilardo	79
Anti-lock brake systems: an assessment of training on driver effectiveness Michael A. Mollenhauer, Thomas A. Dingus, Cher Carney, Jonathan M. Hankey and Steve Jahns	97
A new method for predicting crashworthiness Forrest M. Council, J. Richard Stewart and Chante L. Cox	109

Brief Communications and Research Notes

Child safety seat misuse patterns in four states Lawrence E. Decina and Kathleen Y. Knoebel	125
---	-----

- Supervision in childhood injury cases: a reliable taxonomy**
 Karen E. Wills, Robert R. Tanz, Katherine K. Christoffel, Joseph L. Schofer,
 John V. Lavigne, Mark Donovan and Kristin Kalangis 133

Forthcoming Papers I

NUMBER 2

Papers

- Safety and the car size effect: a fundamental explanation**
 Denis P. Wood 139
- Attitudes and road accident risk**
 Terje Assum 153
- Impact modelling studies for a three-wheeled scooter taxi**
 D. Mohan, J. Kajzer, K. S. Bawa-Bhalla and A. Chawla 161
- The evaluation of road-rail crossing safety with limited accident statistics**
 V. Gitelman and A. S. Hakkert 171
- Effects of signalisation on four-arm urban junction safety**
 J. C. Golias 181
- Evaluations of road accident blackspot treatment: a case of the iron law of evaluation studies?**
 Rune Elvik 191
- Evaluation of an alternative traffic light change anticipation system**
 Craig Newton, Renatus N. Mussa, Edward K. Sadalla, Elizabeth K. Burns and Judson Matthias 201
- Slipping on ice and snow—elderly women and young men are typical victims**
 Ulf Björnstig, Johanna Björnstig and Anna Dahlgren 211
- Taxi drivers' accidents: how binocular vision problems are related to their rate and severity in terms of the number of victims**
 Urs Maag, Charles Vanasse, Georges Dionne and Claire Laberge-Nadeau 217
- Age, gender and the effectiveness of high-threat letters: an analysis of Oregon's driver improvement advisory letters**
 Bernie Jones 225
- The effectiveness of side marker lamps: an experimental study**
 Jan Theeuwes and Johan W. A. M. Alferdinck 235
- Estimating blood alcohol level from observable signs**
 A. James McKnight, Elizabeth A. Langston, Paul R. Marques and A. Scott Tippetts 247

Brief Communications and Research Notes

- Farm-related injury mortality in New Mexico, 1980–91**
 Cameron S. Crandall, Lynne Fullerton, Lenora Olson, David P. Sklar and Ross Zumwalt 257

Bibliographic Section	263
------------------------------	-----

Forthcoming Papers	I
---------------------------	---

NUMBER 3

Papers

Exposure and risk factors among elderly drivers: a case-control study Richard Lefrançois and Monia D'Amours	267
What surviving drivers learn from a fatal road accident Sirpa Rajalin and Heikki Summala	277
Methodological issues in testing the hypothesis of risk compensation Brian Dulisse	285
An investigation of behavioural adaptation to airbags and antilock brakes among taxi drivers Fridulv Sagberg, Stein Fosser and Inger-Anne F. Sætermo	293
Fatal pedestrian accidents in France: a typological analysis Hélène Fontaine and Yves Gourlet	303
Motor-vehicle crash-injury risk factors among American Indians David C. Grossman, Jonathan R. Sugarman, Caroline Fox and John Moran	313
Can a combination of local, regional and national information substantially increase bicycle-helmet wearing and reduce injuries? Experiences from Sweden Robert Ekman, Lothar Schelp, Glenn Welanders and Leif Svanström	321
Costs of gunshot and cut/stab wounds in the United States, with some Canadian comparisons Ted R. Miller and Mark A. Cohen	329
United States passenger-vehicle crashes by crash geometry: direct costs and other losses Ted Miller, Diane Lestina, Maury Galbraith, Tim Schlax, Pamela Mabery and Richard Deering	343
The effects of paved shoulders on accidents on rural highways K. W. Ogden	353
An epidemiological study of bicycle-related injuries Elsvig Eilert-Petersson and Lothar Schelp	363
Increased police enforcement: effects on speed Truls Vaa	373
The effect of time headway feedback on following behaviour Stephen H. Fairclough, Andrew J. May and C. Carter	387
Two-vehicle side impact crashes: the relationship of vehicle and crash characteristics to injury severity Charles M. Farmer, Elisa R. Braver and Eric L. Mitter	399
Forthcoming Papers	I

NUMBER 4

FATIGUE AND TRANSPORT

Introduction

- Laurence R. Hartley 407

*Part I: Causal Mechanisms***Fatigue, mindset and ecology in the hazard dominant environment**

- Thomas M. Nelson 409

Black times: temporal determinants of transport safety

- Simon Folkard 417

Time of day variations in driving performance

- Michael G. Lenné, Thomas J. Triggs and Jennifer R. Redman 431

Aircrew fatigue in long-haul operations

- Alexander Samel, Hans-Martin Wegmann and Martin Vejvoda 439

Sleepiness and driving: the experience of U.K. car drivers

- G. Maycock 453

Driver fatigue in the city

- Dallas L. Fell and Barbara Black 463

Hours of work, and perceptions of fatigue among truck drivers

- Pauline K. Arnold, Laurence R. Hartley, Angela Corry, David Hochstadt, Fulvio Penna and Anne Marie Feyer 471

Development of fatigue symptoms during simulated driving

- Thomy Nilsson, Thomas M. Nelson and Dona Carlson 479

Motor vehicle accidents, fatigue and optimism bias in taxi drivers

- James R. Dalziel and R. F. Soames Job 489

*Part II: Countermeasures***Fatigue, workload and adaptive driver systems**

- P. A. Hancock and W. B. Verwey 495

Adaptation to the driver as part of a driver monitoring and warning system

- R. Onken and J. P. Feraric 507

Implications of task-induced fatigue effects for in-vehicle countermeasures to driver fatigue

- P. A. Desmond and G. Matthews 515

Prospects for technological countermeasures against driver fatigue

- Ivan D. Brown 525

The influence of sustained attention on railway accidents

- Graham D. Edkins and Clare M. Pollock 533

Balancing work and rest to combat driver fatigue: an investigation of two-up driving in Australia A.-M. Feyer, A. Williamson and R. Friswell	541
--	-----

Forthcoming Papers	I
---------------------------	---

Announcement	III
---------------------	-----

NUMBER 5

Papers

Damage to bicycle helmets involved with crashes Randal P. Ching, Diane C. Thompson, Robert S. Thompson, Daniel J. Thomas, William C. Chilcott and Frederick P. Rivara	555
Occupational safety and health inspection scores predict rates of workers' lost-time injuries Michael K. Lindell	563
Older drivers and risk to other road users Brian Dulisse	573
An investigation into the relationships between area social characteristics and road accident casualties Ibrahim M. Abdalla, Robert Raeside, Derek Barker and David R. D. McGuigan	583
Effects of administrative license revocation on employment Kathleen Y. Knoebel and H. Laurence Ross	595
Motor vehicle fatalities in the United States construction industry Timothy Ore and David E. Fosbroke	613
Evaluation of a method for reducing unlicensed driving: the Washington and Oregon license plate sticker laws Robert B. Voas, A. Scott Tippetts and James E. Lange	627
Temporary vehicle immobilization: evaluation of a program in Ohio Robert B. Voas, A. Scott Tippetts and Eileen Taylor	635
Safety climate and attitude as evaluation measures of organizational safety Rosa Isla Díaz and Dolores Díaz Cabrera	643
Sensation seeking and risky driving: a review and synthesis of the literature Brian A. Jonah	651
Vehicle travel speeds and the incidence of fatal pedestrian crashes R. W. G. Anderson, A. J. McLean, M. J. B. Farmer, B. H. Lee and C. G. Brooks	667
Crash involvement rates by driver gender and the role of average annual mileage Dawn L. Massie, Paul E. Green and Kenneth L. Campbell	675
Epidemiology of road traffic accidents during pleasure travelling: the evidence from the island of Crete E. Petridou, H. Askitopoulou, D. Vourvahakis, Y. Skalkidis and D. Trichopoulos	687

Brief Communications and Research Notes

Seat belt use in a developing country: covert noncompliance with a primary enforcement law in Malaysia	
Mark Hauswald	695
Migraine: a risk factor for motor vehicle driver injury?	
Robyn Norton, Stephen Vander Hoorn, Ian Roberts, Rodney Jackson and Stephen MacMahon	699
Bibliographic Section	703
Forthcoming Papers	I

NUMBER 6

Papers

Young male drinkers and impaired driving intervention: results of a U.S. telephone survey	
Bruce P. Kennedy, Nancy E. Isaac, Toben F. Nelson and John D. Graham	707
Alcoholism at the time of injury among trauma center patients: vehicular crash victims compared with other patients	
Carl A. Soderstrom, Patricia C. Dischinger, Gordon S. Smith, J. Richard Hebel, David R. McDuff, David A. Gorelick, Timothy J. Kerns, Shiu M. Ho and Kathleen M. Read	715
Close-following drivers on two-lane highways	
Sirpa Rajalin, Sven-Olof Hassel and Heikki Summala	723
Paediatric slow-speed non-traffic fatalities: Victoria, Australia, 1985-1995	
Priscilla Robinson and Terry Nolan	731
Safety knowledge of users and non-users of the lap belt on two-point motorized belt systems	
Mark R. Lehto and Dwayne S. James	739
Fatal crashes of passenger vehicles before and after adding antilock braking systems	
Charles M. Farmer, Adrian K. Lund, Rebecca E. Trempel and Elisa R. Braver	745
Effects of incentive programs to stimulate safety belt use: a meta-analysis	
Marjan P. Hagenzieker, Frits D. Bijleveld and Ragnhild J. Davidse	759
Driver age and traffic citations resulting from motor vehicle collisions	
Brian Dulisse	779
Lower limb injuries to passenger car occupants	
Brian Fildes, Jim Lenard, John Lane, Peter Vulcan and Keith Seyer	785
Age related effects of restricted head movements on the useful field of view of drivers	
Robert B. Isler, Barry S. Parsonson and Glenn J. Hansson	793
Crash reductions related to traffic signal removal in Philadelphia	
Bhagwant Persaud, Ezra Hauer, Richard Retting, Rama Vallurupalli and Kornel Mucsi	803

Serious brain injury from traffic-related causes: priorities for primary prevention

D. Viano, H. von Holst and E. Gordon

811

Crash characteristics and injuries of victims impaired by alcohol versus illicit drugs

P. F. Waller, F. C. Blow, R. F. Maio, K. Singer, E. M. Hill and N. Schaefer

817

*Brief Communications and Research Notes***Modeling accident frequencies as zero-altered probability processes: an empirical inquiry**

V. Shankar, J. Milton and F. Mannering

829

Differences in traffic judgements between young and old adult pedestrians

Jennie Oxley, Brian Fildes, Elfriede Ihsen, Judith Charlton and Ross Day

839

The importance of the time factor in fire and rescue service operations in Sweden

Bengt Mattsson and Birgitta Juås

849

Forthcoming Papers

I

List of Contents, Vol. 29, 1997

iii

Author Index, Vol. 29, 1997

x

